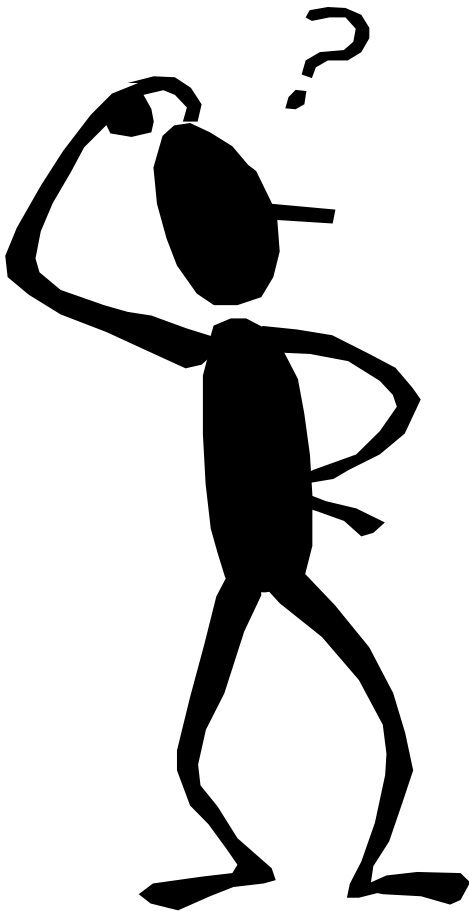


NGV Codes & Regulations

What You Need to Know



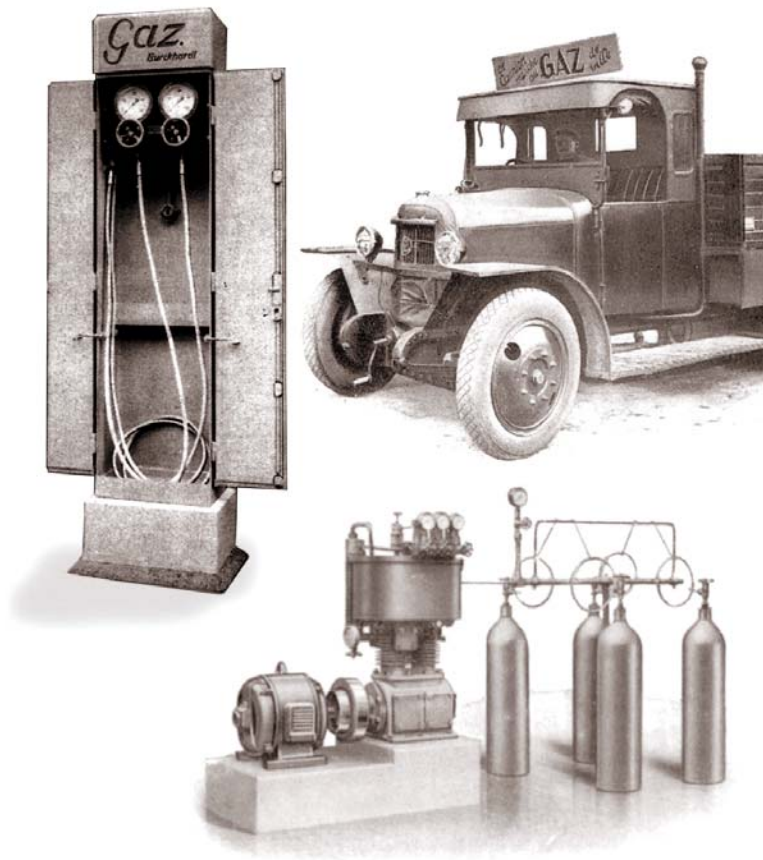


THE NATURAL GAS VEHICLE COALITION

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Director of Technology

Without Good C&S, We're Behind the Times!



Standards/Guidelines-Setting Organizations

(Not All-Inclusive)

NFPA – National Fire Protection Association
Uniform Fire Code
International Fire Code
FTA-DOT – Federal Transit Administration
NHTSA-DOT – National Highway Traffic Safety Administration
FMCSA-DOT – Federal Motor Carrier Safety Administration
DOT HM Regulations (Transportation and Reference for LNG Storage Vessels)
EPA – Environmental Protection Agency
SAE – Society of Automotive Engineers
CSA-International
CGA – Compressed Gas Association
ANSI – American National Standards Institute
ISO – International Organization for Standardization
ECE - Economic Commission of Europe
OIML – International Organization of Legal Metrology
ASME Boiler and Pressure Vessel Code (Storage Vessels)
California Code of Regulations
Railroad Commission of Texas
PA DOT
AAMVA – American Association of Motor Vehicle Administrators
Massachusetts Registry of Motor Vehicles
CVSA – Commercial Vehicle Safety Alliance

Codes, Standards and Advisories Applicable to Natural Gas Vehicles

(N.B. This list is not all-inclusive)

Document	Applicability	Comments
NFPA 52 – Compressed Natural Gas Vehicular Fuel Systems Code – 2000	CNG vehicles (incl. marine) and fueling facilities	Probably single best source of guidance for CNG vehicles and fueling facilities
NFPA 57 – Liquefied Natural Gas Vehicular Fuel System Code - 2000	LNG and LNG to CNG vehicles (incl. marine) and fueling facilities	
NFPA 88B – Standard for Repair Garages - 1997 (subsumed in 30A-2000)	All garages used for major repair and maintenance of motorized vehicles	Has some specific requirements for garages working with NGVs, such as ventilation, electrical requirements near the ceiling, temperature of exposed surfaces on heaters
NFPA 88A – Standard for Parking Structures – 1998	Open, enclosed, basement and underground parking structures	No special requirements for NGVs other than reference to NFPA 52 and 57
NFPA 30A – Code for Motor Fuel Dispensing Facilities and Repair Garages - 2000	Applies to facilities dispensing both gaseous and liquid fuels at the same facility	Includes requirements of 88B.

Document	Applicability	Comments
NFPA 59A – Standard for the Production, Storage, and Handling of Liquefied Natural Gas - 1996	Site selection, design, construction, and fire protection for LNG facilities	
SAE J1616 – Recommended Practice for Compressed Natural Gas Vehicle Fuel - 1994	CNG	Recommendations on vehicular fuel composition.
SAE J2323 – Recommended Practices for LNG Powered Heavy Duty Trucks - 1997	LNG HD Trucks	Primarily heavy truck recommendations but some maintenance facility equipment and procedures.
SAE J2406 - Recommended Practices for CNG Powered Medium and Heavy Duty Trucks - 2002	CNG M and HD Trucks	Primarily medium and heavy truck recommendations but some maintenance facility equipment and procedures.
Design Guidelines for Bus Transit Systems Using Liquefied Natural Gas (LNG) as an Alternative Fuel (3/97)	Transit Facilities but useful reference for other fleets	FTA Report - Not only references required codes (e.g., NFPA) but also suggests additional precautions and provides general information.
Design Guidelines for Bus Transit Systems Using Compressed Natural Gas as an Alternative Fuel (6/96)	ditto	ditto
Compressed Natural Gas Safety in Transit Operations (10/95)	ditto	ditto
Liquefied Natural Gas Safety in Transit Operations (3/96)	ditto	ditto
Uniform Fire Code - 1997	“The most widely adopted model building code in the United States”	May be the fire code used in your area. Check with local fire marshal

Document	Applicability	Comments
International Fire Code - 2000	"New" fire code	Check with local fire marshal on applicability
CSA B108-99 Natural Gas Fuelling Stations Installation Code	Canadian Std. applicable to fleet and public stations	
CSA B108-99 Annex – Indoor Refuelling of Natural Gas Vehicles	Canadian Std. Fueling facilities w/i a building with primary functions other than fueling. Does not cover public stations.	Published August 2001
CSA B109-01 – Natural Gas for Vehicles Installation Code	Canadian Std. Applies to "installation, servicing and repair of NG fuel systems on self-propelled vehicles."	
ANSI NGV1-1994 (with 1997 & 1998 addenda) – Compressed Natural Gas Vehicle Fueling Connection Devices	CNG vehicular fueling connection devices	Assures standardized nozzles and receptacles
ANSI NGV2-2000 – Basic Requirements for CNG Vehicle Fuel Containers	CNG fuel containers	Container requirements in addition to FMVSS 304.
ANSI NGV3.1-1995 – Fuel System Components for Natural Gas Powered Vehicles	Fuel system components for NGVs (excludes LNG components upstream of vaporizer)	Primarily for converted vehicles.
ANSI NGV4.1-1999 – NGV Dispensing Systems	CNG vehicular fuel dispensing systems	

Document	Applicability	Comments
ANSI NGV4.2-1999 – Hoses for Natural Gas Vehicles and Dispensing Systems	CNG dispenser and vehicular hose assemblies	
ANSI NGV4.4-1999 – Breakaway Devices for Natural Gas Dispensing Hoses and Systems	CNG dispenser shear valves and fueling hose emergency breakaway shutoff devices	
ANSI NGV4.6—1999 – Manually Operated Valves for Natural Gas Dispensing Systems	Manually operated CNG valves, excluding cylinder shut-off valves	
ANSI NGV4.8-2002 – Natural Gas Fueling Station Reciprocating Compressor Guidelines	Compressor packages containing reciprocating compressors used in CNG fueling stations	
ANSI PRD1-1998 – Basic Requirements for Pressure Relief Devices for Natural Gas Vehicle Fuel Containers	Pressure Relief Devices for CNG Fuel Containers	
CGA C-6.4-1998 – Methods for External Visual Inspection of Natural Gas Vehicle Fuel Containers and Their Installations	CNG vehicular fuel containers	Referenced in ANSI NGV2
49 CFR 571.304, FMVSS 304 – Compressed Natural Gas Fuel Container Integrity	CNG motor vehicle fuel containers	DOT Federal Motor Vehicle Safety Standard for CNG motor vehicles.

Document	Applicability	Comments
49 CFR 571.303, FMVSS 303 – Fuel System Integrity of Compressed Natural Gas Vehicles	CNG vehicles ≤10,000 lbs. GVWR and school buses	DOT Federal Motor Vehicle Safety Standard for crash test of light duty vehicle and school bus CNG fuel systems.
49 CFR 393.65, FMCSR – All Fuel Systems	Commercial vehicles in interstate commerce	DOT Federal Motor Carrier Safety Regulations
CA Code of Regulations, Title 13, Div 2, Ch 4, Article 2	Fuel systems using LNG in 13 CCR 935, CNG in 13 CCR 934	CA requirements
TX Administrative Code, Title 16, Part 1, Ch 13	CNG regulations in Subchapter E, LNG Regulations in Subchapter M	TX requirements

Availability:

National Fire Protection Association (NFPA) documents – contact NFPA at 1-800-344-3555 or <http://catalog.nfpa.org>

Society of Automotive Engineers (SAE) documents – contact SAE at 774-726-0790 or www.sae.org/products

Federal Transit Administration (FTA) documents – contact William Hathaway at 617-494-2081 or the National Technical Information Service at 703-605-6050 or www.ntis.gov

Uniform Fire Code – Contact Western Fire Chiefs Association/Uniform Fire Code Association at 760-723-6911 or www.wfca.com/ufca or buy from a bookstore, such as Amazon.Com

International Fire Code – Contact International Codes Council at 703-931-4533 or www.intlcode.org

Canadian Standards Association (CSA) documents – Contact CSA at 1-800-463-6727 or www.csa.ca

Availability:

ANSI NGV documents – Contact Kelly Batte at Natural Gas Vehicle Coalition at 202-824-7360 or kbatte@ngvc.org

Compressed Gas Association (CGA) documents – Contact CGA at 703-412-0900 or www.cganet.com

Code of Federal Regulations (CFR) – Can be obtained on the web at www.access.gpo.gov

California Code of Regulations (CCR) – Can be obtained on the web at <http://ccr.oal.ca.gov>

Texas Administrative Code – Can be obtained on the web at [http://info.sos.state.tx.us:80/pub/plsql/readtac\\$ext.ViewTAC](http://info.sos.state.tx.us:80/pub/plsql/readtac$ext.ViewTAC)

With Good C&S,
We're Up to Date!



Dodge Charger CNG Concept Vehicle

Where do we go from here?

- Revise and update present C&S as needed
- Develop new C&S as needed
- Expand NGV industry involvement in C&S process
 - More NGV industry people
 - Wider range of involvement (ICC, ASME, ISO, OIML, etc.)
- Harmonize and Coordinate C&S
 - US
 - North America
 - Internationally

Where do we go from here?

- Provide central source for NGV C&S
 - List on website(s)
 - Access (including purchase as appropriate) from one location
- Educate NGV users and potential users
- Educate code officials
- Educate first responders
- Other????